

AMENDMENT TO THE CLAIMS

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strike through~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) ~~Multiple~~ A multiple insertion head for mounting components onto substrates, ~~with~~ comprising

- a carrier (200) ~~which is~~ arranged such that it can rotate about a rotational axis, and
- a plurality of receiving tools (210) ~~that are~~ arranged such that they can be moved in a mounting direction at an angle to the rotational axis (~~D~~); ~~said the~~ receiving tools being arranged on the carrier (200) ~~and used~~ arranged so as to receive the components (300),
~~with such that~~ each receiving tool (210) ~~being is~~ provided with at least one of an or a ~~plurality of~~ active drives (220, 228) and/or sensors (217).

2. (currently amended) Multiple insertion head according to claim 1, with each receiving tool (210) having its own rotary drive (228) by means of which received components (300) can in each case be rotated about a tool axis (215) arranged at an angle to the rotational axis (D) of the multiple insertion head.

3. (currently amended) ~~The Multiple~~ multiple insertion head according to claim 1, ~~with wherein~~ each receiving tool (210) ~~having~~ comprises a vacuum generator (~~220~~).

4. (currently amended) ~~Multiple~~ The multiple insertion head according to claim 3, ~~wherein with~~ the vacuum generators (~~220~~) ~~being~~ comprises a Venturi tubes and the carrier (200) ~~has~~ comprises a hollow shaft (110) running coaxially to the rotational axis (~~D~~) to which the receiving tools (210) are fitted ~~and~~ such that compressed air can be conveyed through the hollow shaft (110) of the carrier to the Venturi tubes.

5. (currently amended) ~~Multiple~~ The multiple insertion head according to ~~one of the~~ claim 3, ~~with wherein~~ the Venturi tubes ~~being is~~ connected to a regulator to control ~~the~~ pressure.

6. (currently amended) ~~Multiple~~ The multiple insertion head according to ~~one of the claims 1 to 5~~ claim 1, ~~further comprising with~~ a blast air vacuum device ~~being provided which arranged~~ in a receiving mounting position (A) of one of the receiving tools (210), ~~the vacuum device further arranged such that therein which components~~ can be received or mounted by means of the receiving tool (210) located in the receiving mounting position (A), ~~with which the receiving tool (210) being located in the receiving mounting position (A) is connected in each case and by means of which~~ such that an additional vacuum can be applied or generated to the receiving tools (210) for receiving the components or in addition a blast air impulse while mounting the components in the receiving tool (210) located in the receiving mounting position (A).

7. (currently amended) ~~The Multiple~~ multiple insertion head according to claim 1 ~~to 6~~, ~~with wherein each the receiving tools (210) in each case having~~ comprises a tool shaft (215) embodied as a hollow shaft running coaxially to the tool axis and ~~with each receiving tool (210) having a rotary sensor (217) by means of which arranged so as to detect an the angle position of the tool shaft (215) can be detected.~~

8. (currently amended) ~~Multiple~~ The multiple insertion head according to claim 7, ~~wherein with the each tool shafts (215) being provided in each case with~~ comprises a vacuum pipettes (260) ~~at their~~ at a distal end range.

9. (currently amended) ~~The Multiple~~ multiple insertion head according to ~~one of the claims 1 to 8~~ claim 1, ~~further comprising with~~ a rotationally symmetrical energy and data transmission device ~~being arranged between the carrier (200) and a housing (100) of the multiple insertion head, the transmission device arranged such that and by means of which the at least one of active drives (220, 228) and/or and sensors (217) can be supplied with energy and by which the data from the sensors and the data to the sensors can be transmitted with a first transmitter part being permanently fitted to the housing (100) of the multiple insertion head and a second transmitter part being permanently fitted to the carrier (200) in such a way that it can rotate.~~

10. (currently amended) ~~The M~~ multiple insertion head according to claim 9, ~~with the energy and data wherein the transmission device having~~ comprises at least one slip ring.

11. (currently amended) ~~The M~~multiple insertion head according to claim 9, wherein ~~with the energy and the data transmission device in each case having comprises~~ one pair of electromagnetic transmitters (410, 420) and one pair of capacitive transmitters (415, 425) ~~which are in each case arranged~~ rotationally symmetrical around the rotational axis of the multiple insertion head and by means of which there is non-contact transmission of both the energy and the data.

12. (currently amended) ~~The M~~multiple insertion head according to claim 11, ~~with~~ wherein the capacitive transmitter (415, 425) ~~is in this case embodied as comprises~~ a plate-shaped antenna in the first transmitter part and in the second transmitter part, ~~and in which case in the first transmitter part the electromagnetic transmitter can have~~ comprises a circular magnetically conductive body (410) with a u-shaped cross section open in the direction of the carrier, and a circular magnetically conductive body (420) in the second transmitter part ~~with, in essence, comprising~~ a rectangular cross section which is arranged in such a way in the opening of the first transmitter part that the direction of the magnetic field used for the transmission of energy is, ~~in essence, at right angles to the direction of the electrical field used for the transmission of data.~~

13. (currently amended) ~~Multiple~~The multiple insertion head according to ~~one of the claims claim 9 to 12, comprising with~~ at least one polished disk (150, 250) ~~being provided arranged~~ on the housing (100) and on the carrier (200) ~~in each case in such a way that the polished disks (150, 250) are arranged immediately next to each other so that the compressed air and a vacuum can be applied from external vacuum generators to the active drives (220) of the carrier.~~

14. (currently amended) ~~Multiple~~The multiple insertion head according to ~~one of the claims 1 to 13, wherein with the carrier (200) having comprises~~ at least one control device (230) ~~for arranged so as to controlling and/or regulating regulate~~ the active drives (220, 228) ~~and/or sensors (217).~~

15. (currently amended) ~~The Multiple~~multiple insertion head according to claim 14, wherein ~~with the control unit (230) having comprises~~ at least one digital signal processor by means of which one or a plurality of the active drives (220, 228) ~~or sensors (217) can be controlled.~~

16. (currently amended) ~~Multiple~~ The multiple insertion head according to ~~one of the preceding claims~~ claim 1, further comprising, ~~with~~ a linear motor (500) ~~also being provided by means of which~~ arranged such that a receiving tool (210) found in the receiving mounting position (A) can be moved in the mounting direction provided that the linear motor (500) is engaged in the receiving tool.

17. (currently amended) ~~Multiple~~ The multiple insertion head according to claim 16, further comprising ~~with~~ an engaging element (212) ~~being provided in each receiving tool so as to which can engage in an engaging piece (510) of the runner (520) of the linear motor (500).~~

18. (currently amended) ~~Multiple~~ The multiple insertion head according to ~~one of the claims 16 or 17~~ claim 16, further comprising ~~with~~ an additional retracting means interacting with the linear motor (500) by means of which ~~the~~ a runner (520) of the linear motor is pretensioned by means of a spring tension against the force of gravity and in which ~~this~~ pretensioning is compensated for by compressed air when the insertion head is in operation.